

Appln. No. 09/558,575
Amdt. dated 06/10/04
Reply to Office Action of 03/11/04

REMARKS

Claims 30-32 are pending. Claim 30 is amended herein.

Claims 30 and 32 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Pat. No. 4,610,581 to Heinlein (hereinafter "Heinlein"). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendment to claim 30.

Heinlein is directed to an end mill having an elongate cylindrical shaft provided at an upper end with a shank for chucking the end mill in a milling machine spindle. The shaft is equipped with flutes presenting helical workpiece cutting edges running out at the opposite lower end of the shaft. The cutting edges have a helix pitch angle of from 10 degrees to 30 degrees. Surfaces at each flute define with the cutting edge of the flute a rake angle and relief angle both of which are about 5 degrees to 7 degrees. The rake angle surface slopes away from the upper end and toward the lower end on a concave curvature away from the cutting edge and merges by way of a continuing concave upsweep curvature with an overhang surface which runs out toward the relief angle surface thereabove. The rake angle and relief angle surfaces in cooperation with the cutting edge run continuously along each flute from the shank to the lower end of the shaft and operate in center thrust cutting operation to cut from the workpiece tightly curled chips substantially as long as the depth of cut in the workpiece.

The Examiner states that Heinlein discloses a rotary cutting tool having a first cutting portion that is non-tapered (the cutting portion of the tool 21 near the shank 23) defining a first outer diameter, and a second cutting portion that is non-tapered (the cutting portion of the tool 21 near the front end) defining a second outer diameter, wherein the second outer diameter is the same as the first outer diameter. The two cutting portions referred to by the Examiner appear to be a single cutting portion.

Unlike the present invention, Heinlein does not disclose, teach or suggest a rotary cutting tool for generating slots in die boards comprising a first cutting portion that is non-tapered and defining a first outer diameter, and a second cutting portion that is non-tapered and defining a second outer diameter extending from and coaxial with the first cutting portion, and wherein the second outer diameter is

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different from the first outer diameter, as recited in amended claim 30. Providing cutting portions with different diameters permits the smaller diameter cutting portion to generate a slot in a die board having a width adapted for receiving and grippingly retaining a die board rule, and the larger diameter cutting portion to provide strength and stability to the rotary cutting tool while generating a slot during a cutting operation.

For an anticipation rejection to be appropriate, each and every element or limitation in a rejected claim must be shown in a single prior art reference used in the claim rejection. Because Heinlein does not teach or suggest a rotary cutting tool for generating slots in die boards, wherein the tool comprises first and second cutting portions having outer diameters that are different from each other, it cannot be maintained that Heinlein anticipates amended claim 30. Moreover, because claim 32 depends from and thereby incorporates the limitations of claim 30, claim 32 is not anticipated by Heinlein for at least the reasons set forth for claim 30.

Claim 31 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Heinlein in view of U.S. Pat. No. 4,449,865 to Yankovoy et al. (hereinafter "Yankovoy"). Claim 31 depends from and thereby incorporates the limitations of claim 30. The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendment to claim 30.

Yankovoy is directed to a method and tool for drilling countersunk holes in a composite of materials having different strength and elastic characteristics. The tool includes a front hole cutting section for initially generating the hole, and a rear countersink cutting section providing an enlarged tapered entrance to the hole. The tool has a single flute which extends axially along the length of the front and rear tool cutting sections. The front cutting section includes a planar end surface which is inclined relative to the tool axis and which defines with the flute and a cylindrical outer surface of this section, a single end cutting point and adjacent radial and longitudinal cutting edges. The rear cutting section includes an outer surface which extends radially outward and axially rearward from the front cutting section, and which intersects a leading side of the flute at an acute angle to define a countersink cutting edge. The method provides for simultaneous point and surface cutting of the composite to form an initial hole, and subsequent cutting of the composite to

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form the enlarged tapered entrance to the hole. Point and surface cutting occur at the outer circumferential surface of the hole.

Yankovoy is directed to a tool for drilling countersunk holes, as opposed to a rotary cutting tool for generating slots in die boards as claimed in the present application. In other words, the countersink tool of Yankovoy is non-analogous art, and consequently a person skilled in the pertinent art of generating slots in die boards would not have been motivated to consult Yankovoy for the purpose of modifying the tool disclosed in Heinlein. Moreover, the tapered portion shown in the tool of Yankovoy is not interposed between two cutting portions of a rotary cutting tool for generating slots as is recited in claim 31, wherein each of the two cutting portions are defined in part by at least two helical cutting flutes extending longitudinally, as is recited in claim 30 from which rejected claim 31 depends.

In any event, it has been demonstrated above that Heinlein contains insufficient teaching to anticipate claim 30. It therefore follows that Heinlein contains insufficient teaching when taken either alone or in combination with Yankovoy to render obvious claim 31 which incorporates the limitations of claim 30.

In view of the foregoing, it is respectfully submitted that claims 30-32 are in condition for allowance. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

No fees or deficiencies in fees are believed to be owed. However, authorization is hereby given to charge our Deposit Account No. 13-0235 in the event any such fees are owed.

Respectfully submitted,

By *Daniel G. Mackas*
Daniel G. Mackas
Registration No. 38,541
Attorney for Applicants

McCormick, Paulding & Huber LLP
CityPlace II, 185 Asylum Street
Hartford, Connecticut 06103-3402
Tel.: (860) 549-5290